

# Who looks after people with diabetes: primary or secondary care?

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## SUMMARY

Because the prevalence of type 2 diabetes has increased greatly over the past decade, UK general practitioners have been encouraged to develop services for people with diabetes and to offer structured diabetes care. The resultant shift from secondary care can place considerable demands on primary health care teams. Data were obtained from 108 practices in two English health districts followed up in primary and secondary care.

Nearly two-thirds of the people with diabetes were being followed up only in general practice, the remainder in hospital or both. The proportion managed in primary care varied from 5.6% to 94.6%. The settings where diabetes care was most likely to be offered were training practices, practices with good nursing support, practices with a high prevalence of diabetes, and practices in which a high proportion of diabetic patients were controlled by diet or hypoglycaemic agents.

Tight control of glycaemia and blood pressure is now seen as important in diabetes, and is best achieved in general practice. This survey revealed large variations in delivery of general-practice diabetes care that need to be addressed by better organization and funding.

## INTRODUCTION

The nature of work undertaken by different health professionals is constantly shifting<sup>1</sup> and for the past 15–20 years diabetes has been argued as a disease suitable for follow-up in primary care<sup>2</sup>. In addition, the prevalence of type 2 diabetes has increased dramatically over the past decade<sup>3</sup>. General practitioners have therefore been encouraged, since 1993, to develop services for diabetes, with a specific payment for doctors offering structured diabetes care. As a result, the proportion of people with diabetes reviewed annually in primary care has increased<sup>4</sup>—a change that seems to be welcomed by the patients<sup>5</sup>. Such a shift can place considerable demands on primary health care teams, but there is evidence that structured care in general practice can be of high standard<sup>6</sup>. However, little is known about the proportion of people with diabetes being cared for in the primary and secondary sectors. The aim of this study was to estimate the proportions of people with diabetes managed solely in primary care or secondary care. Our further aim was to determine associations of general-practice care with practice characteristics and with the prevalence and treatment of diabetes.

## METHOD

We obtained data from two primary care audit groups (formally called medical audit advisory groups) that had recently conducted a multipractice audit of diabetes care. Practices in these audit groups had audited diabetes care between 1994 and 1996, after instruction on how to develop an accurate diabetes register. The methods included a disease register, computer records, hospital registers and repeat prescriptions<sup>7</sup>. The practices were asked to supply information on where the patients received their diabetes care. The patients were classified as being followed up in general practice only (GP care), hospital clinics only (hospital care) or both (shared care). Since the taxonomy of shared care is not fully developed<sup>6</sup>, we studied variations in patients solely under general practice care. We did not determine whether the patients were reviewed annually at general practices or hospital clinics since data on this question have been reported<sup>4</sup>.

The respective health authorities provided data relating to 1996 for all the general practices including list size, number of partners, fundholding status, Jarman Score, Townsend Score, training status and number of whole-time-equivalent nurses. Data for two deprivation measures were collected because the Jarman Score<sup>8</sup> is currently used for deprivation payments but the Townsend Score<sup>9</sup> is closely related to material deprivation. Ethical approval was granted from both local ethics committees and respondents were promised confidentiality.

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Table 1 Delivery of care of people with diabetes\*

Site of care	No. (%)	95% confidence interval	Range between practices
GP	6041 (63.2)	62.2 to 64.2	5.6 to 94.6
Hospital	1184 (12.4)	11.7 to 13.1	0 to 69.4
Shared	2332 (24.4)	23.5 to 25.3	0 to 88.0

\*Data on delivery of care not known for 339 (3.4%) patients

Data were analysed with SPSS for Windows (version 8). Univariate associations between variables were sought by standard chi-squared test for categorical variables and *t*-tests for continuous variables. Multiple regression was employed to determine which practice characteristics were independently associated with general-practice care.

## RESULTS

The two health authorities were responsible for 239 practices of which 123 had participated in the multipractice audit. There was no significant difference in mean list size, number of GPs, number of whole-time equivalent nurses, Jarman Score, Townsend Score, fundholding status or training status between those practices that participated in the multipractice audit and those that did not. Data on the delivery of care were available for 9896 people with

diabetes from 108 (87.8%) practices of which 27 (25.0%) were single-handed, 70 (64.8%) had 2–5 partners and 11 (10.2%) had 6 or more partners. Table 1 shows where people with diabetes received their care. Treatment was known for 9800 (99.0%) people with diabetes: 7170 (73.2%; 95% confidence interval 72.3 to 74.1) were on diet or oral hypoglycaemic drugs and 2630 (26.8%; 26.0 to 27.7) were insulin treated. Figure 1 shows a frequency histogram of proportions of patients under general-practice care.

Table 2 shows the univariate and multiple linear regression of factors associated with the likelihood of provision of care from general practice. Increased delivery of care in general practice is significantly associated with training practices, practices with more nurses, practices with a higher prevalence of diabetes and practices with a higher proportion of patients who are controlled on diet or oral hypoglycaemic drugs. There was no association with fundholding, size of practice, number of partners or socioeconomic deprivation.

## DISCUSSION

Can the results of this survey, showing large variations in delivery of diabetes care, be generalized? For accuracy, case ascertainment should be as complete as possible. In this investigation, all available sources were used to develop a diabetes register and all patients were included for the prevalence estimation. Furthermore, the prevalence of

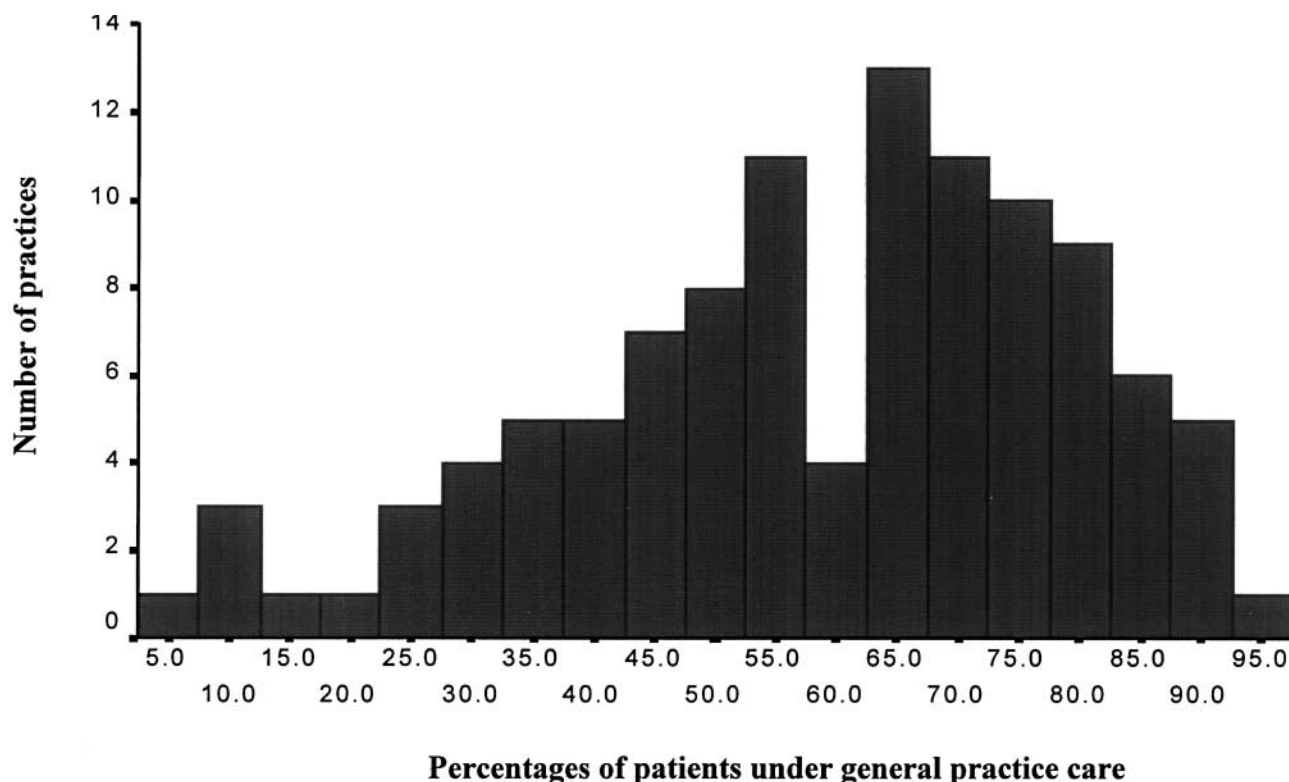


Figure 1 Frequency histogram of proportion of people with diabetes under general practice care

Table 2 Univariate and multiple linear regression of factors associated with primary care delivery of diabetes in 108 practices

		Univariate regression		Multiple regression <sup>‡</sup>	
		Beta-coefficient (95% CI)	P	Beta coefficient (95% CI)	P
Fundholding practice, No. (%)	38 (35.2)	6.9 (−1.2 to 15.1)	0.09	—	—
Training practice, No. (%)	19 (17.6)	17.2 (7.4 to 27.0)	0.0007	14.8 (6.4 to 23.2)	0.001
List size in 1000s	6.0 (6.7)	0.4 (−0.6 to 1.4)	0.40	—	—
No. of GPs	3.2 (3.6)	2.0 (0.1 to 3.9)	0.04	—	—
No. of whole-time equivalent nurses	1.4 (2.1)	4.2 (0.3 to 8.1)	0.04	4.4 (1.1 to 7.6)	0.009
Mean Jarman Score <sup>†</sup>	3.9 (6.4)	−0.1 (−0.4 to −0.1)	0.35	—	—
Mean Townsend Score <sup>†</sup>	0.4 (1.0)	−0.8 (−2.0 to 0.5)	0.23	—	—
Mean prevalence of diabetes, %	1.6 (0.7)	11.1 (6.1 to 16.1)	<0.0001	8.1 (3.6 to 12.7)	0.001
Proportion of patients diet controlled or on oral hypoglycaemic drugs, %	73.2 (12.7)	0.5 (0.2 to 0.8)	0.001	0.4 (0.2 to 0.7)	0.001

Values are mean [SD] unless stated otherwise

<sup>†</sup>1991 enumeration district data

<sup>‡</sup>Four factors were independently associated with primary care delivery of diabetes (adjusted R<sup>2</sup> 32.9%)

known diabetes, 1.6%, was similar to rates found in other recent studies<sup>3</sup>. The proportions of patients being cared for in general practice, hospital, and shared care are comparable with those in smaller studies of people with diabetes<sup>10–12</sup>, and the proportions treated by diet, hypoglycaemic drugs and insulin are also comparable to those previously reported<sup>7</sup>. What about selection? Although the practices that took part were self selected, they were typical of practices in England in terms of number of partners, list size and fundholding status<sup>13</sup>. Training practices were marginally under-represented.

Despite the evidence that general-practice care can be as good as hospital care, the wide variations exposed in this survey clearly need to be addressed. A major obstacle to comprehensive and systematic diabetes care in general practice is lack of 'organization': delivery of diabetes care in general practice is associated with more organized practices, a higher level of nursing support and a higher prevalence of diabetes in the practice population. Deprivation does not seem to be an obstacle. Because we did not determine the quality of care delivered by the practices, we cannot say whether practices with a high proportion of people with diabetes under general-practice care were providing good or poor services. A recent large study of multipractice audit data indicated that 85% of people with diabetes were reviewed annually<sup>14</sup>.

The UK Prospective Diabetes Study Group has lately shown the importance of tight glycaemic<sup>15</sup> and blood pressure<sup>16</sup> control in diabetes. Action based on this evidence is best served in primary care, but this will place a heavy burden on already stretched primary-care diabetes

teams. Furthermore, if there is an increase in transfer of patients from secondary care to primary care it is important to ensure that primary care is adequately resourced to provide high quality of care<sup>4</sup>.

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